

ON-CHIP DYNAMIC BUFFER LEVEL
INDICATORS FOR DIGITAL VIDEO ENCODER

Abstract of the Disclosure

Method and encoder for encoding a digital video
5 image stream. The encoding includes spatial
compression of still images in the video stream and
temporal compression between the still images. The
spatial compression is carried out by converting a
time domain image of a macroblock to a frequency
10 domain image of the macroblock, taking the discrete
cosine transform of the frequency domain image,
transforming the discrete cosine transformed
macroblock image by a quantization factor, and run
length encoding the quantized discrete cosine
15 transformed macroblock image. The temporal
compression is carried out by reconstructing the run
length encoded, quantized, discrete cosine
transformed image of the macroblock, searching for a
best match macroblock, and constructing a motion
20 vector between them. This forms a bitstream of run
length encoded, quantized, discrete cosine transform
macroblocks and of motion vectors. This bitstream is
passed to and through an external buffer to a
transmission medium. The number encoded bits read by
25 a host from the external buffer is fed back to the
encoder for calculation in real time of a dynamic
buffer level indicator indicative of the fullness of
the external buffer. The encoder may generate a
BUFFER_EMPTY flag, BUFFER_ALMOST_FULL flag and/or
30 BUFFER_FULL flag for the host.